WHAT IS CLAIMED IS:

1. A method in an electronic device for compressing digital ink, the digital ink comprising a plurality of digital ink points representing a drawn object on a display, the method comprising:

dividing the digital ink into a plurality of digital ink strokes;

representing each of the plurality of digital ink strokes with a corresponding approximation element based upon quadratic Bezier curve approximation, the corresponding approximation element comprising an element identification and Bezier control points;

separating the corresponding approximation elements of the plurality of digital ink strokes into first and second groups of approximation elements based upon a first predetermined condition, the first group of approximation elements satisfying the first predetermined condition and the second group of approximation elements not satisfying the first predetermined condition;

converting each approximation element of the first group of approximation elements into a corresponding line approximation segment to obtain a converted first group of elements; and

re-representing each approximation element of the second group of approximation elements based upon a second predetermined condition to obtain a re-represented second group of elements.

2. The method of claim 1, further comprising:

compressing losslessly the converted first group of approximation elements and the re-represented second group of approximation elements.

3. The method of claim 1, wherein dividing the digital ink into a plurality of digital ink strokes divides the digital ink based upon a predetermined delta size.

4. The method of claim 3, further comprising:

determining a first data size comprising all of the quadratic Bezier curve approximations;

determining a second data size comprising the converted first group of approximation elements and re-represented second group of approximation elements;

selecting a new delta size if the second data size is greater than the first data size; and

repeating the steps of claim 1.

5. The method of claim 1, wherein dividing the digital ink into a plurality of digital ink strokes, for each of the plurality of digital ink strokes further comprises:

estimating curvature at each digital ink point of the digital ink stroke;

comparing the estimated curvature to a predetermined curvature condition; and

splitting the digital ink stroke into a set of corresponding sub-strokes if the estimated curvature of the digital ink stroke satisfies the predetermined curvature condition.

6. The method of claim 5, wherein estimating curvature at each digital ink point of the digital ink stroke is based upon an average of all estimated curvatures within a window, the window fixing a number of digital ink points permissible within the window.

7. The method of claim 1, wherein the Bezier control points comprise first and second on-line control points and an off-line control point.

8. The method of claim 7, wherein the first predetermined condition includes an error tolerance boundary for each digital ink stroke for determining whether the off-line control point of the digital ink stroke is within the error tolerance boundary.

9. The method of claim 8, wherein converting each approximation element of the first group of approximation elements into a corresponding line approximation segment converts each approximation element by representing each approximation element of the first group of approximation elements only by on-line control points of each approximation element of the first group of approximation elements.

10. The method of claim 7, wherein each Bezier control point is represented by the element identification of the corresponding approximation element, an X-axis coordinate, a Y-axis coordinate, and a curve status, the X-axis and Y-axis coordinates representing coordinates of the display, the curve status indicative of the Bezier control point being one of an on-line control point and an off-line control point.

11. The method of claim 10, wherein re-representing each element of the second group of elements based upon a second predetermined condition further comprises:

creating an X-coordinate array having X-coordinate array elements, each X-coordinate array element of the X-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the X-axis coordinate of the Bezier control point;

creating a Y-coordinate array having Y-coordinate array elements, each Y-coordinate array element of the Y-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the Y-axis coordinate of the Bezier control point; and

calculating first order differences between consecutive array elements of each coordinate array.

12. The method of claim 11, wherein re-representing each element of the second group of elements based upon a second predetermined condition is based upon the calculated first order differences between consecutive array elements of each coordinate array.

13. The method of claim 12, further comprising modifying the representation of each element of the second group by at least one of:

inserting an additional on-line control point;

inserting an additional off-line control point;

deleting an existing on-line control point;

deleting an existing off-line control point;

perturbing an existing on-line control point; and

perturbing an existing off-line control point.

14. An electronic device capable of compressing digital ink representing a drawn object, the electronic device comprising:

a display configured to display the drawn object;

a processor coupled to the display, the processor configured to capture the drawn object on the display as digital ink; and

a memory circuit coupled to the processor,

wherein the processor comprises:

a digital ink stroke generator configured to divide the digital ink into a plurality of digital ink strokes;

a Bezier curve generator coupled to the digital ink stroke generator, the Bezier curve generator configured to generate Bezier control points based upon quadratic Bezier curve approximation, the Bezier control points representing approximation elements, each approximation element having a unique corresponding digital ink stroke in the plurality of digital ink strokes;

an element separator coupled to the Bezier curve generator, the element separator configured to separate the approximation elements into first and second groups based upon a first predetermined condition;

a line converter coupled to the element separator, the line converter configured to convert each approximation element of the first group into a corresponding line approximation segment;

a modifier coupled to the element separator, the modifier configured to re-represent each approximation element of the second group based upon a second predetermined condition; and

a data compressor coupled to the line converter and the modifier, the data compressor configured to compress a combined data of the converted first group and the re-represented second group.

15. The electronic device of claim 14, wherein the display is a touch pad further configured to accept an input signal representing the drawn object drawn on the display.

16. The electronic device of claim 15, wherein the display is further configured to display an object based upon the compressed combined data representing the drawn object.

17. The electronic device of claim 14, wherein each Bezier control point is represented by a corresponding element identification, an X-axis coordinate, a Y-axis coordinate, and a curve status, the X-axis and Y-axis coordinates representing coordinates of the display, the curve status indicative of the Bezier control point being one of on-line control point and off-line control point.

18. The electronic device of claim 17, where in the memory circuit is configured to store an X-coordinate array having X-coordinate array elements, each X-coordinate array element of the X-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the X-axis coordinate of the Bezier control point, and a Y-coordinate array having Y-coordinate array elements, each Y-coordinate array element of the Y-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the Y-axis coordinate of the Bezier control point.

19. The electronic device of claim 18, wherein the processor further comprises a first order difference calculator coupled to the element separator and the modifier, the first order difference calculator configured to calculate first order differences between consecutive array elements of each coordinate array.

20. The electronic device of claim 19, wherein the second predetermined condition is based upon the calculated first order differences between consecutive array elements of each coordinate array.

21. A method in an electronic device for compressing a Bezier curve approximation, the Bezier curve approximation having a plurality of approximation elements, each approximation element represented by corresponding Bezier control points comprising first and second on-line control points and an off-line control point, each approximation element identified by an element identification, the method comprising:

separating the plurality of approximation elements into first and second groups of approximation elements based upon a first predetermined condition, the first group of approximation elements satisfying the first predetermined condition and the second group of approximation elements not satisfying the first predetermined condition;

converting each approximation element of the first group of approximation elements into a corresponding line approximation segment to obtain a converted first group of elements;

re-representing each approximation element of the second group of approximation elements based upon a second predetermined condition to obtain a re-represented second group of elements; and

compressing losslessly the converted first group of approximation elements and the re-represented second group of approximation elements.

22. The method of claim 21, wherein the first predetermined condition includes an error tolerance boundary for each approximation element of the plurality of approximation elements for determining whether the off-line control point of the digital ink stroke is within the error tolerance boundary.

23. The method of claim 22, wherein converting each approximation element of the first group of approximation elements into a corresponding line approximation segment converts each approximation element by representing each approximation element of the first group of approximation elements only by on-line control points of each approximation element of the first group of approximation elements.

24. The method of claim 21, wherein each Bezier control point is represented by the element identification of the approximation element which the Bezier control point represents, an X-axis coordinate, a Y-axis coordinate, and a curve status, the X-axis and Y-axis coordinates representing coordinates of the display, the curve status indicative of the Bezier control point being one of an on-line control point and an off-line control point.

25. The method of claim 24, wherein re-representing each approximation element of the second group of approximation elements based upon a second predetermined condition further comprises:

creating an X-coordinate array having X-coordinate array elements, each X-coordinate array element of the X-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the X-axis coordinate of the Bezier control point;

creating a Y-coordinate array having Y-coordinate array elements, each Y-coordinate array element of the Y-coordinate array partially representing a corresponding Bezier control point identified by the element identification and the Y-axis coordinate of the Bezier control point; and

calculating first order differences between consecutive array elements of each coordinate array.

26. The method of claim 25, wherein re-representing each element of the second group of elements based upon a second predetermined condition is based upon the calculated first order differences between consecutive array elements of each coordinate array.

27. The method of claim 26, further comprising modifying the representation of each element of the second group by at least one of:

inserting an additional on-line control point;

inserting an additional off-line control point;

deleting an existing on-line control point;

deleting an existing off-line control point;

perturbing an existing on-line control point; and

perturbing an existing off-line control point.